What is claimed is:

1. A driving apparatus, comprising:

a base frame;

an electro-mechanical transducer one end of which is fixed to the base frame;

a moving member frictionally coupled with the electro-mechanical transducer; and

a driver to drive the electro-mechanical transducer,

wherein the driver applies a voltage such that the speed of extension of the electro-mechanical transducer between the ends thereof differs from the speed of contraction.

2. The driving apparatus of claim 1, wherein the electro-mechanical transducer has a thin plate configuration.

3. The driving apparatus of claim 2, wherein the driver applies a voltage such that the speed of extension and contraction of the electro-mechanical transducer in the direction perpendicular to polarization are different.

4. The driving apparatus of claim 2, wherein the electro-mechanical transducer has a protrusion frictionally contacted with the moving member.

5. The driving apparatus of claim 4, wherein the protrusion area is plated by material to prevent wearing of the electro-mechanical transducer.

6. The driving apparatus of claim 2, wherein the driver applies a voltage in the thickness direction of the thin plate.

7. The driving apparatus of claim 2, wherein the electro-mechanical transducer has a disk configuration and a notch.

8. The driving apparatus of claim 1, wherein the electro-mechanical transducer has a disk configuration and a protrusion frictionally contacted with the moving member, the moving member driven to rotate by applying the voltage.

9. The driving apparatus of claim 8, wherein the electro-mechanical transducer has a notch near the protrusion.

10. The driving apparatus of claim 1, wherein electro-mechanical transducer is a piezoelectric element.

11. The driving apparatus of claim 2, further comprising: fig 3

two groups of active electrodes on the thin plate,

wherein the driver applies a voltage such that a first section of the thin plate, covered by the first electrode, extends at a high speed and contracts slowly while the second section of the thin plate, covered by the second electrode, contracts at a high speed and extends slowly.

12. The driving apparatus of claim 11, wherein the electro-mechanical transducer has a disk configuration and a notch.

13. The driving apparatus of claim 12, wherein four electrodes are allocated such that surface of disk is equally divided into parts by the four electrodes, such that electrodes of diagonal position make a pair.

14. A driving apparatus, comprising:

a base frame;

an electro-mechanical transducer one end of which is fixed to the base frame, the electro-mechanical transducer has a disk configuration and a contact part;

a moving member frictionally contacted with a contact part of the electro-mechanical transducer, the moving member driven to rotate by applying a voltage; and

a driver to drive the electro-mechanical transducer, wherein the driver applies the voltage such that a speed

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of extension of the electro-mechanical transducer between the ends thereof differs from the speed of contraction.

15. The driving apparatus of claim 14, wherein the electro-mechanical transducer has a notch near the contact part.

16. The driving apparatus of claim 14, further comprising:

two groups of active electrodes on a thin plate,

wherein the driver applies a voltage such that a first section of the thin plate, covered by the first electrode, extends at a high speed and contracts slowly while the second section of the thin plate, covered by the second electrode, contracts at a high speed and extends slowly.

17. The driving apparatus of claim 16, wherein four electrodes are allocated such that surface of disk is equally divided into parts by the four electrodes, such that electrodes of diagonal position make a pair.

18. The driving apparatus according to claim 14, wherein the driver applies a voltage such that speeds of extension and contraction of the electro-mechanical transducer in the direction perpendicular to polarization are different.

19. The driving apparatus according to claim 14, wherein the contact part is plated by material to prevent wearing of the electro-mechanical transducer.

20. The driving apparatus, comprising:

a base frame;

an electro-mechanical transducer one end of which is fixed to the base frame, the electro-mechanical transducer has a thin plate configuration and a contact part;

a moving member frictionally contacted with the contact part of the electro-mechanical transducer; and

a driver to drive the electro-mechanical transducer,

wherein the driver applies a voltage such that a speed of extension of the electro-mechanical transducer between the ends thereof differs from the speed of contraction.

21. The driving apparatus according to claim 20, further comprising:

two groups of active electrodes on a thin plate,

wherein the driver applies a voltage such that a first section of the thin plate, covered by the first electrode, extends at a high speed and contracts slowly while the second section of the thin plate, covered by the second electrode, contracts at a high speed and extends slowly.

22. The driving apparatus according to claim 20, wherein the driver applies a voltage such that speeds of extension and contraction of the electro-mechanical transducer in the direction perpendicular to polarization are different.

23. The driving apparatus according to claim 20, wherein the contact part is plated by material to prevent wearing of the electro-mechanical transducer.

24. A method of driving an electro-mechanical transducer having two sections covered by two active electrodes, comprising:

applying a voltage such that a first section of the electro-mechanical transducer extends at a high speed while a second section of the electro-mechanical transducer contracts slowly; and

applying the voltage such that the first section of the electro-mechanical transducer contracts slowly while the second section of the electro-mechanical transducer extends at a high speed.

25. The method of driving the electro-mechanical transducer of claim 24, wherein the electro-mechanical transducer has a

disk configuration, and a moving member is driven to rotate by applying the voltage.